IDAHO DEPARTMENT OF AGRICULTURE
Division of Agricultural Resources

The Idaho Chemigator

Idaho's List of Approved Chemigation Equipment

Revised June 2006

Idaho's Chemigation Program started with the passage of the Chemigation Law in 1989. The Chemigation Program is authorized by the Idaho Pesticides and Chemigation Law (Chapter 34, Title 22, *Idaho Code*) and the Idaho Rules Governing Pesticide and Chemigation Use and Application, IDAPA 02.03.03.

Chemigation is the injection of chemicals (fertilizers or pesticides) into an irrigation system. The chemigation program is designed to license, educate and regulate the injection of pesticides and fertilizers into agricultural, domestic or municipal irrigation systems. The Chemigation Program ensures that proper equipment is installed in irrigation systems to prevent the backflow of chemicals into the water source. Backflow may occur due to either "backsiphonage" or "backpressure".

Licensing: A private or professional applicator may obtain the chemigation category on their license by passing the chemigation exam. The Chemigation Study Manual, used to study for the exam, is available for purchase from the ISDA office in Boise.

Equipment: Agricultural irrigation systems require an approved chemigation valve consisting of an irrigation line check valve, vacuum relief valve, inspection port, low pressure drain and twenty foot hose. An injection line check valve and interlock (electrical, mechanical or human supervision) are also required.

On surface water systems only, a gooseneck, over-a-hill or downhill system can be used in place of the chemigation valve. These systems require a two-foot difference between the bottom side of the pipe at the loop apex and the highest sprinkler head on the highest part of the field. An injection line check valve and interlock are also needed.

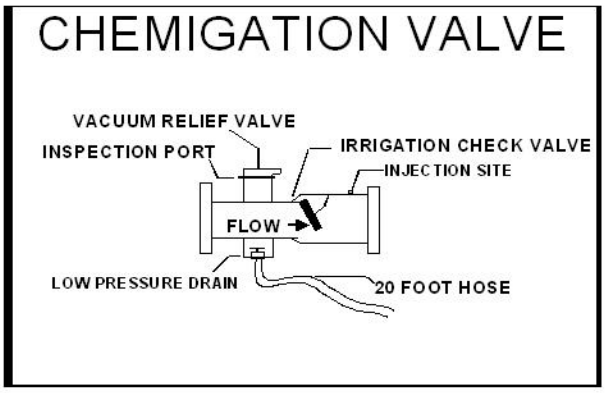
Chemigating with anhydrous ammonia and drip tanks in an open ditch requires a chemigation license. The injection must be done below a break in the water, such as a weir.

Irrigation systems, such as those used in greenhouses, supplied by domestic or municipal water require either an Air Gap (AG) or a Reduced Pressure Backflow Assembly (RP). An interlock is also required. The equipment list can be found in the brochure entitled: Chemigation Approved Backflow Prevention Assemblies for Domestic and Municipal Water Supplies.

Note: When using a pesticide product, read and follow the label instructions on injecting the product into an irrigation system.

Chemigation Valve

An Irrigation Line Check Valve (flapper), Vacuum Relief Valve, Inspection Port, Low Pressure Drain and 20 Foot Hose are the required parts of the chemigation backflow prevention equipment.



Irrigation Line Check Valve (Chemigation Valve)	
Manufacturer	**Model (nominal size in inches)**
Clemons Sales Corp.	CCV (6, 8, 10, 12)
Lake Company	4, 6, 8, 10
Midwest Irrigation Co.	CVP (6, 8, 10, 12)
Morrill Industries	1533 (4, 6, 8, 10)
Pierce Corporation	1775-61: 4, 1778-61: 6, 1778-62: 8 1778-63: 10, 1778-64: 12
Reinke Manufacturing Co., Inc.	CV8-RL (Blu Rivr) (8 -no longer
T-L Irrigation Co.	IV6109 (6), IVI10 (8), IV6111 (10)
Water Specialties Corporation	ML-CV-S (6, 8, 10, 12)
Waterman Industries, Inc.	CPC-30B (4, 6, 8, 10, 12)
API International	CMV-FL (4, 6, 8, 10)
Kroy-Midwest	CVMW (6, 8, 10)

The Irrigation Line Check Valve (flapper) prevents the chemical/water mixture from returning back to the water source.

An Inspection Port is required to allow inspection of the Irrigation Line Check Valve to see that it is functioning correctly and for any possible wear. It also allows inspection of the Low Pressure Drain for possible clogging and to make sure that it is functioning correctly.

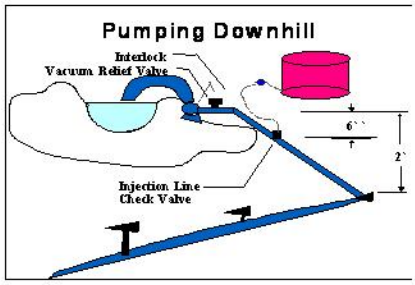
A Chemigation valve can be installed as a unit, found on the front page of this brochure and at left. Or an approved Wafer Check Valve, as seen in the photographs below, can be installed with a spool containing a Vacuum Relief Valve, Inspection Port, Low Pressure Drain and hose (below left).

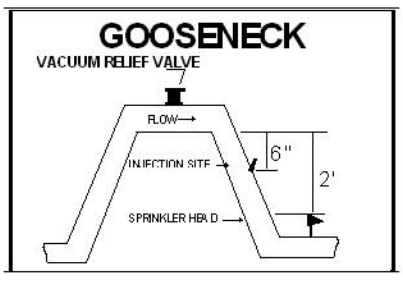
Irrigation Line Check Valve – Split Disk Wafer Check Valve	
Manufacturer	**Model (nominal size in inches)**
Fresno Valves & Casting Inc.	CVW 150 (4, 5, 6, 8, 10, 12)
Netafim USA	65ARIN4, 65ARIN6 (4, 6)
Matco-Norca	CVC (4, 6, 8) *
Universal Irrigation Sales Co.	CV (4, 6, 8, 10, 12)

* 10" & 12" Matco-Norca removed from list on 11/9/05. Valves installed prior to 11/9/05 may be used if leakage is not detected.

Gooseneck, Pumping Downhill, or Over A

A Gooseneck, Pumping Downhill, or Over A Hill can be used in place of a chemigation valve for surface water only. The bottom side of the pipe, at the loop apex (top) or bottom side of the pump discharge, must be at least 24 inches above the highest sprinkler on the highest part of the field. A vacuum relief valve needs to be located at the apex of the pipe loop. The injection site must be located downstream of the loop apex at least 6 inches or more, below the bottom side of the pipe at the loop apex. An injection line check valve and interlock are also required.





Vacuum Relief

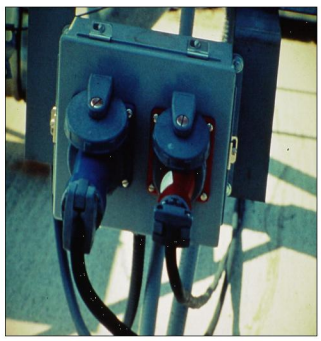
The Vacuum Relief Valve allows air to enter into the system to help prevent the pipe from collapsing when the system shuts down. Combination air/vacuum relief valves allow air to escape when the system is turned on.

Manufacturer	Model (nominal size in inches)
Bermad	4415 (2), 4420 (2)
Fresno Valves & Casting Inc.	200 (2), 300 (3), 400 (4)
Global Irrigation, Inc.	150 AV (1.5), 200 AV (2), 300 AV (3), 400 AV (4)
IPACO	2AV (1.23), 2AVE (1.96), 3AV (3.14)
Midwest Irrigation Co.	1.5, 2
Rainbird	RB-2AV (2)
Travis Pattern & Foundry Inc.	AV-150 (1.5), AV-200 (2), AV-300 (3)
Waterman Industries, Inc.	AV-150 (1.5, 2, 3, 4), AVP-1 (1, 2, 3),
Clemons Sales	AR200C (2"), AR300C (3")
XCAD Valve and Irrigation	2AV Aluminum Air Vent

Manufacturer	Model (nominal size in inches)
Netafim USA	Guardian 65ARIA (3/4", 1", 2", 3") Combination 65ARIB2 (2"), Combination ARIB2-B (2")

Interlock - Electrical, Mechanical and Human

When chemigating, an Electrical Interlock, Mechanical Interlock or Human Supervision is required to shutdown the chemical injection pump if an irrigation system failure occurs. Human Supervision can only be used for applications of one (1) hour or less. Installation of a chemigation valve or gooseneck, and an injection line check valve is still required.



Manufacturer	Model
Inject-O-Meter Mfg. Co., Inc.	¾", ½," Max-94
Raguse & Co., Inc.	Shur-Mix II
Agri-Inject, Inc.	Mister Mist'r
Jaeco Fluid Systems, Inc.	316 Stainless Ball Check 10 PSI (1/4", 3/8", 1/2", 3/4", 1") 316 Stainless 10 PSI O-Ring (1/4", 3/8", 1/2", 3/4", 1")

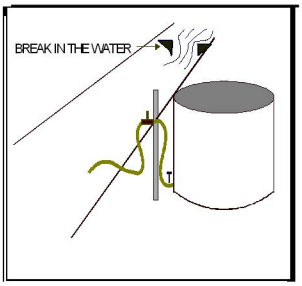
Low Pressure Drain and Hose

The Low Pressure Drain opens up when the system shuts down and allows the water from the area between the flapper and irrigation pump to drain away from the pipe and water source. The drain hose must be long enough to discharge the water at least 20' away from .the water source.

Manufacturer
Pierce Corporation
T-L Irrigation Co. (COBCO)
Waterman Industries, Inc.

Drip Tank and Anhydrous

When dripping fertilizer from tanks or anhydrous ammonia located along farm ditches, the injection must be placed below (after) a break in the water (weir). A chemigation license is also needed in these situations.



Chemical Injection Devices

The chemical injection device draws chemical from the chemical tank and pumps it into the irrigation system. The components of the injection device must be resistant to the chemicals you plan to use. Consult the owners manual or the manufacturer of the device to assure compatibility of the device with chemicals used.

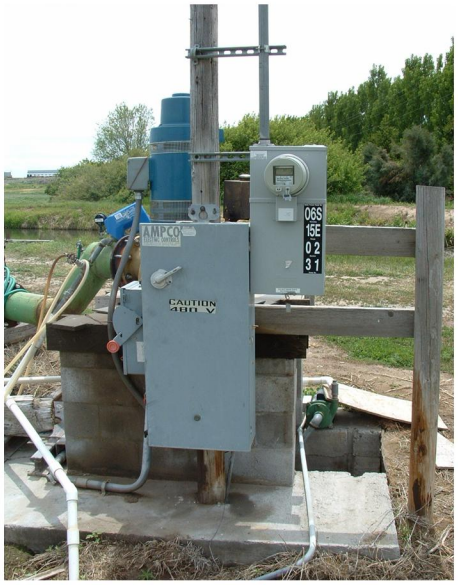
Manufacturer	Model
Agri-Inject, Inc.	Series D, G (B-40, B-60, B-80), Insectigator III
Injection Systems, Inc. (ISI)	Hydra Inject 180
Dosmatic U.S.A.	Advantage Series (A10, A12, A20, A30, A40, A80, DP30, T100), Doselec
Dosatron	D Series (All)
Smith Precision Products	R-1, R-3, R-4, R-6, R-8
H. E. Anderson Co.	Andy Series (DD100, DD200, DD400, DD1000, DD1200), Andy Jr. Series (DB100, DB200, DB400, DB1000, DB1200, DB100PB, DB100P, DB1000PB, DB1000P), J Plus Series (JD31, JD32, JD52, JD52-2, JD104, JD104-2, JD103, JD103-3, JD164, JD164-2, JD164-4), S Series (SDN2-BA, SDN2-BAR)
Chemilizer Products, Inc.	HN55 Series, CP33 Series
Injectometer	I-70 Series, HVI Series, IOM Series, 69-1 Series
Ozawa R&D, Inc.	Models 100 thru 400

Chemigation Valves

Wafer Check with Spool

Injection Line Check Valve

Injection Line Check Valve



Electrical Interlock

Injection Pump

Idaho State Department of Agriculture

Idaho's Chemigation Program

Place First Class Stamp

ADDRESS CORRECTION REQUESTED

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Idaho's Chemigation Web Site:

www.idahoag.us/agresource/chemigation.htm

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Even though a specific model has met required specifications during initial product review, each valve must meet the specifications when inspected on site. If an individual valve does not meet the specifications when inspected, it must be repaired or replaced prior to chemigation.

The listed chemigation equipment has met the test criteria as specified in the Pesticides and Chemigation Law, Section 22-3407B, Idaho Code and the Rules Governing Pesticide and Chemigation Use and Application, IDAPA 02.03.03.966 and is approved for use in Idaho.